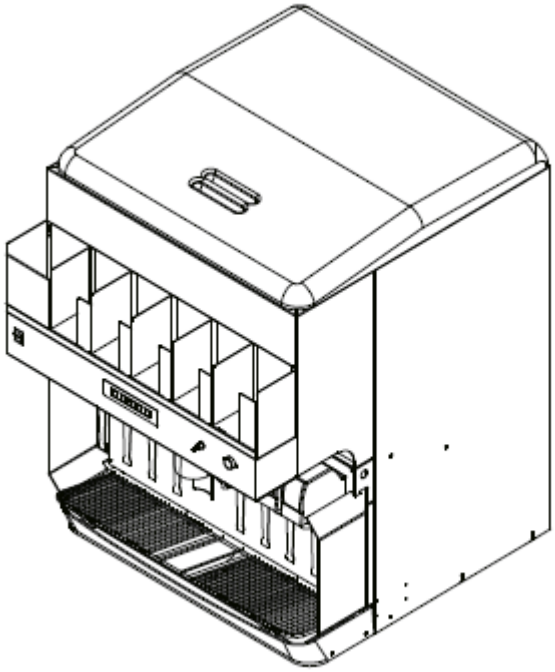
Installation Manual
ENDURO ICE/BEVERAGE DISPENSER
Model: ED-250 BCP



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The products, technical information, and instructions contained in this manual are subject to change without notice. These instructions are not intended to cover all details or variations of the equipment, nor to provide for every possible contingency in the installation, operation or maintenance of this equipment. This manual assumes that the person(s) working on the equipment have been trained and are skilled in working with electrical, plumbing, pneumatic, and mechanical equipment. It is assumed that appropriate safety precautions are taken and that all local safety and construction requirements are being met, in addition to the information contained in this manual.

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Contact Information:

To inquire about current revisions of this and other documentation or for assistance with any Cornelius product contact:

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SAFETY INSTRUCTIONS

READ AND FOLLOW ALL SAFETY INSTRUCTIONS

Safety Overview

- Read and follow **ALL SAFETY INSTRUCTIONS** in this manual and any warning/caution labels on the unit (decals, labels or laminated cards).
- Read and understand ALL applicable OSHA (Occupational Safety and Health Administration) safety regulations before operating this unit.

Recognition

Recognize Safety Alerts
 This is the safety alert symbol. When you see it in this manual or on the unit, be alert to the potential of personal injury or damage to the unit.

DIFFERENT TYPES OF ALERTS

DANGER:
Indicates an immediate hazardous situation which if not avoided **WILL** result in serious injury, death or equipment damage.

WARNING:
Indicates a potentially hazardous situation which, if not avoided, COULD result in serious injury, death, or equipment damage.

CAUTION:
Indicates a potentially hazardous situation which, if not avoided, MAY result in minor or moderate injury or equipment damage.

SAFETY TIPS

- Carefully read and follow all safety messages in this manual and safety signs on the unit.
- Keep safety signs in good condition and replace missing or damaged items.
- Learn how to operate the unit and how to use the controls properly.
- **Do not** let anyone operate the unit without proper training. This appliance is **not** intended for use by very young children or infirm persons without supervision. Young children should be supervised to ensure that they do not play with the appliance.
- Keep your unit in proper working condition and do not allow unauthorized modifications to the unit.

QUALIFIED SERVICE PERSONNEL

WARNING:
Only trained and certified electrical, plumbing and refrigeration technicians should service this unit. **ALL WIRING AND PLUMBING MUST CONFORM TO NATIONAL AND LOCAL CODES. FAILURE TO COMPLY COULD RESULT IN SERIOUS INJURY, DEATH OR EQUIPMENT DAMAGE.**

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Safety Precautions

This unit has been specifically designed to provide protection against personal injury. To ensure continued protection observe the following:

WARNING:
Disconnect power to the unit before servicing following all lock out/tag out procedures established by the user. Verify all of the power is off to the unit before any work is performed.

Failure to disconnect the power could result in serious injury, death or equipment damage.

CAUTION:
Always be sure to keep area around the unit clean and free of clutter. Failure to keep this area clean may result in injury or equipment damage.

Shipping And Storage

CAUTION:
Before shipping, storing, or relocating the unit, the unit must be sanitized and all sanitizing solution must be drained from the system. A freezing ambient environment will cause residual sanitizing solution or water remaining inside the unit to freeze resulting in damage to internal components.

CO_2 (CO_2 Carbon Dioxide) Warning

DANGER:
CO_2 displaces oxygen. Strict attention **MUST** be observed in the prevention of CO_2 gas leaks in the entire CO_2 and soft drink system. If a CO_2 gas leak is suspected, particularly in a small area, **IMMEDIATELY** ventilate the contaminated area before attempting to repair the leak. Personnel exposed to high concentrations of CO_2 gas experience tremors which are followed rapidly by loss of consciousness and **DEATH**.

Mounting in or on a Counter

WARNING:
When installing the unit in or on a counter top, the counter must be able to support a weight in excess of **600** lbs. to insure adequate support for the unit. **FAILURE TO COMPLY COULD RESULT IN SERIOUS INJURY, DEATH OR EQUIPMENT DAMAGE.**

NOTE: Many units incorporate the use of additional equipment such as icemakers. When any addition equipment is used you must check with the equipment manufacturer to determine the additional weight the counter will need to support to ensure a safe installation.

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DESCRIPTION

The “ENDURO” series of ice dispensers solves your ice and beverage service needs in a sanitary, space saving, economical way. Designed to be manually filled with ice from any remote ice-making source, these dispensers will dispense cubes (up to 1-1/4 inch in size), cubelets, and hard-chipped or cracked ice. In addition, several flavors of post-mix beverages. “BC” units include beverage faucets and a cold plate and are designed to be supplied direct from syrup tanks and carbonator, with no additional cooling required.

SPECIFICATIONS

Model	ED250 BCP B= (Beverage Faucet) C= (Coldplate) H= Internal Carb) P =(Pneumatic ice portioning system)
Ice Storage:	250 pounds
Maximum No. of Beverage Faucets Available	8
Cold Plate (Built-in)	Yes
Electrical	120/1/60, 3.5 Amps
Dimensions	30 in. Wide X 30-11/16 in. Deep X 39-5/8 in. High

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INSTALLATION INSTRUCTIONS

INSTALLATION

WARNING:
TO THE INSTALLER.

It is the responsibility of the Installer to ensure that the water supply to the dispensing equipment is provided with protection against backflow by an air gap as defined in ANSI/ASME A112. 1.2-1979; or an approved vacuum breaker or other such method as proved effective by test and must comply with all federal state and local codes, failure to comply could result in serious injury, death or damage to the equipment.

Water pipe connections and fixtures directly connected to a potable water supply shall be sized, installed, and maintained according to Federal, State, and Local laws.

1. Locate the dispenser indoors on a level counter top.

   A. LEG OPTION

   Unpack the four (4) legs and install them into the threaded holes provided in the bottom of the unit. The installer must provide flexibility in the product and utility supply to permit shifting the position of the dispenser sufficiently to clean the area beneath it.

   B. COUNTER MOUNTING

   The ice dispenser must be sealed to the counter. The template drawing (see Figure 3) indicates where openings can be cut in the counter. Locate the desired position for the dispenser, then mark the outline dimensions on the counter using the template drawings. Cut openings in counter.
   Apply a continuous bead of *NSF International* (NSF) silastic sealant (Dow 732 or equal) approximately 1/4--inch inside of the unit outline dimensions and around all openings. Then, position the unit on the counter within the outline dimensions. All excess sealant must be wiped away immediately.

2. The beverage tubes, drain tube and power cord are routed through the large opening in the bottom of the unit. See the MOUNTING TEMPLATE (Figure 3) for locating the required clearance opening in the counter for these utility lines.

3. DRIP TRAY DRAIN ASSEMBLY (see Figure 4): Route the drain tube to an open drain with the end of the tube above the “flood” level of the drain. Use the tubing, fittings, clamps, and insulation provided with the Dispenser to assemble the drain. The completed drain line *must* pitch continuously downward and contain no “traps” or improper drainage will result.

4. Connect the beverage system product tubes as indicated in the Beverage System Schematic. This work should be done by a qualified service person.

NOTE: See applicable Plumbing Diagram (see Figure 5 or 6) or Decal on the lower front panel of the unit for the location of syrup and water connections.

5. Clean the hopper interior (see CLEANING INSTRUCTIONS in Owner’s Manual).

WARNING:
This unit must be grounded to avoid possible fatal electrical shock on serious injury to the operator. The unit power card is equipped with a three prong plug. if a Three-hole (grounded) outlet is not available and use an approved method to ground the unit. Failure to comply could result in serious injury, death or damage to the equipment.

6. Connect the power cord to a 120 volt, 60 cycle, 3-wire grounded receptacle. For 220--240 volt International units, a 3--wire power cord is provided. An adapter plug for the particular country will need to be provided by the Installer.

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7. Maximum and minimum ambient temperature rating for correct operation is 40 to 105 F

8. The dispenser is not designed for a wash down environment and must not be placed in an area where a water jet could be used.

9. The unit has to be placed in a horizontal position.

10. If the supply cord is damaged, it must be replaced by the manufacturer, it's service agent or similarly qualified person in order to avoid a hazard.

11. **ICE PORTION CONTROLLER:** Regulated CO2 gas pressure is required to operate the portion control dispensing system. Proceed as follows to connect the CO2 gas pressure source line to the dispenser.

    A. Connect and route the CO2 line from outlet side of the source regulator assembly up to the dispenser.
    NOTE: That the minimum source-regulated pressure is 40 psig.
    B. Connect the CO2 source line to dispenser inlet line labeled "CO2".
    C. The dispenser regulator outlet pressure is factory preset to 34 psig ± 2 psig **DO NOT ADJUST.**

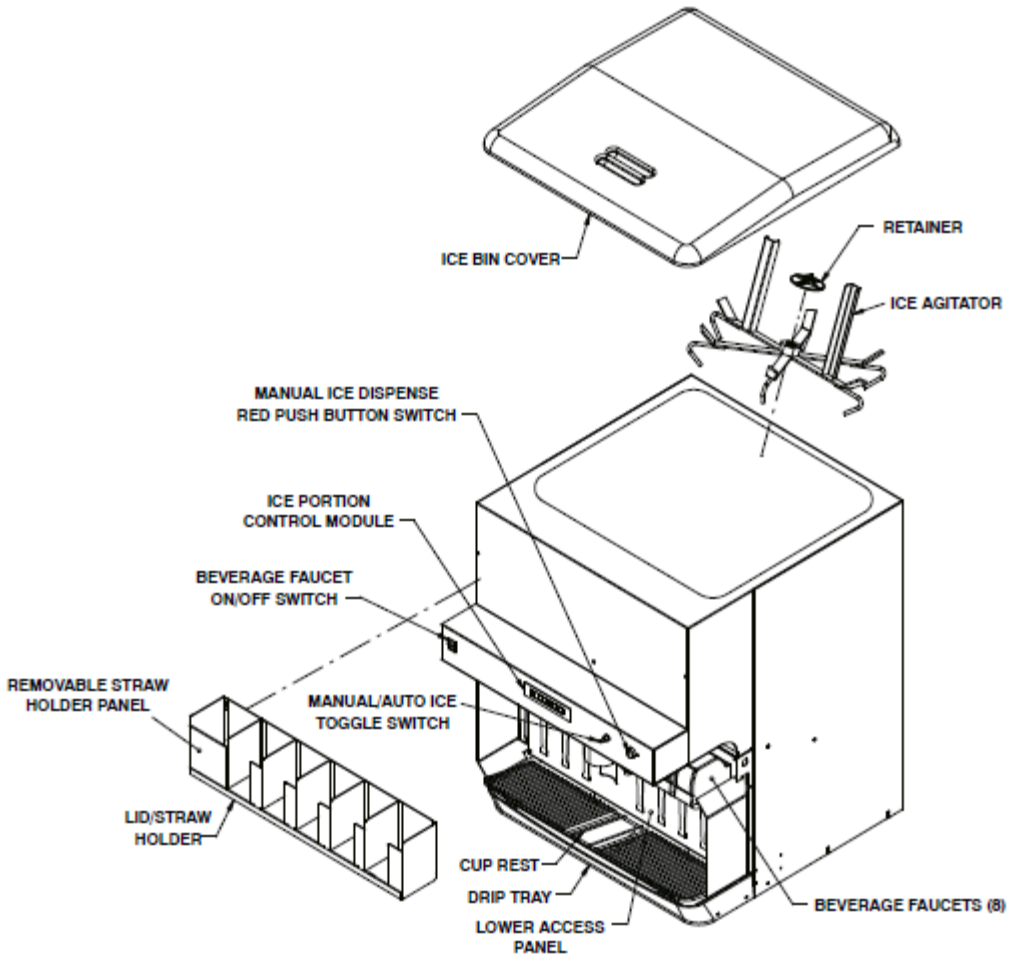

Figure 1. Parts Identification

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ADJUST WATER -TO-SYRUP RATIO

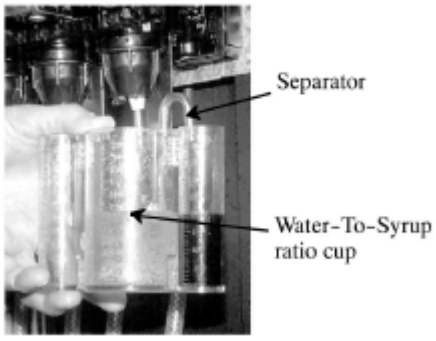

Figure 2

1. Remove valve cover and install syrup separator over the diffuser and through the nozzle.
2. Hold cup under valve and dispenser beverage for a specific time (i.e. 2 seconds)
3. NOTE: water and syrup must be cold before checking ratios.
4. Adjust carbonated water flow to the desired rate (such as 90 to 100 ml (3 to 3.75 oz.) per second). Turn the flow adjuster 1/4 of a turn at a time and recheck the flow. To increase reading turn clockwise.
5. Set a syrup flow adjuster to get the desired ratio.
6. Test the valve and adjust until a consistent ratio is delivered three consecutive times.
7. Repeat procedure for other valves.

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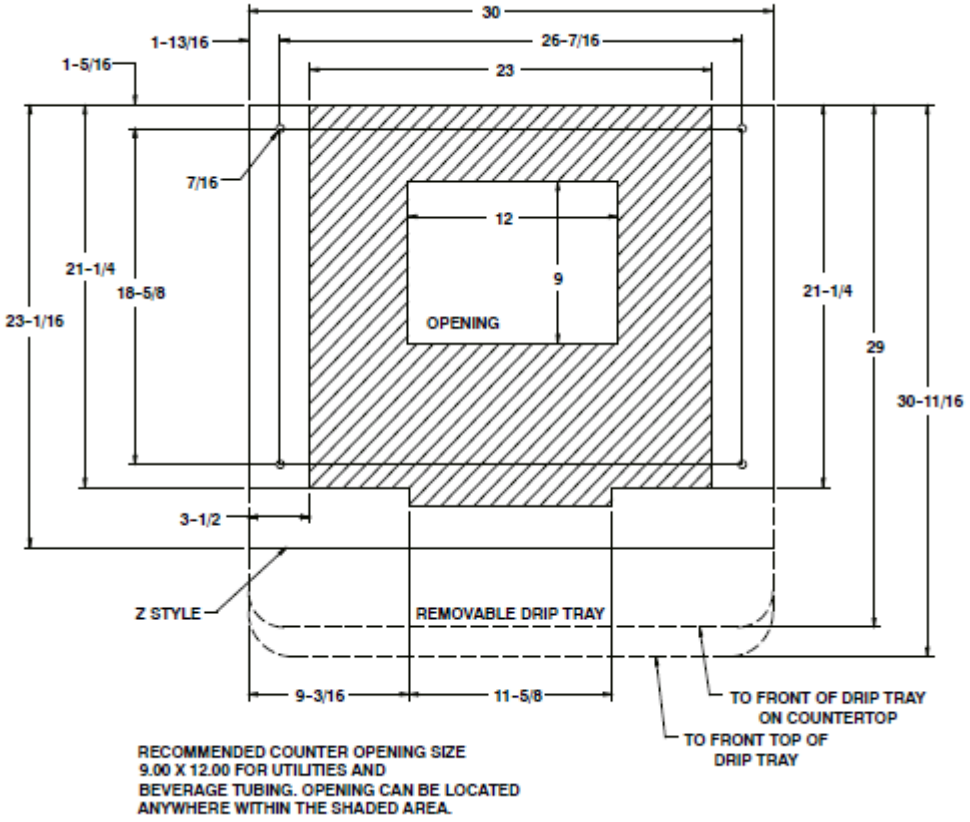

Figure 3. Mounting Template

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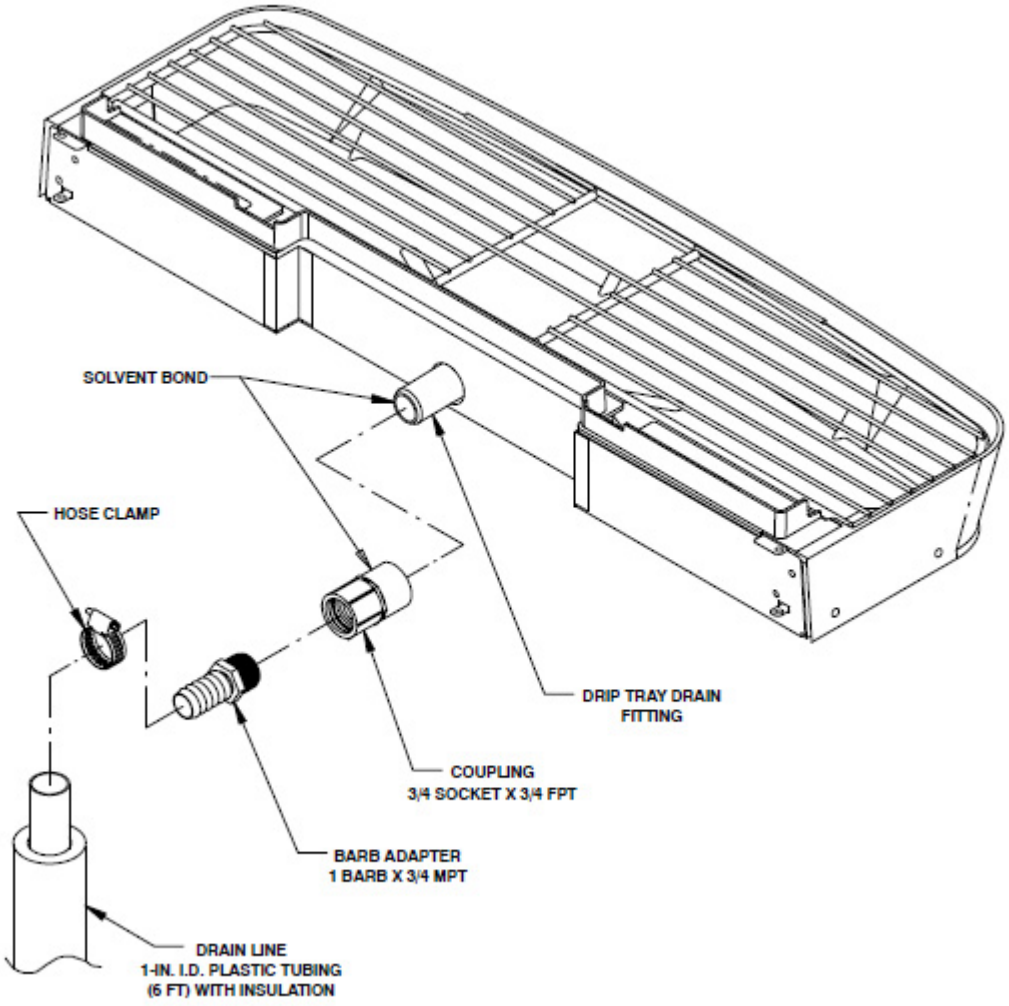
SOLVENT BOND
HOSE CLAMP
DRIP TRAY DRAIN FITTING
COUPLING 3/4 SOCKET X 3/4 FPT
BARB ADAPTER 1 BARB X 3/4 MPT
DRAIN LINE 1-IN. I.D. PLASTIC TUBING (6 FT) WITH INSULATION

Figure 4. Drip Tray Drain Assembly

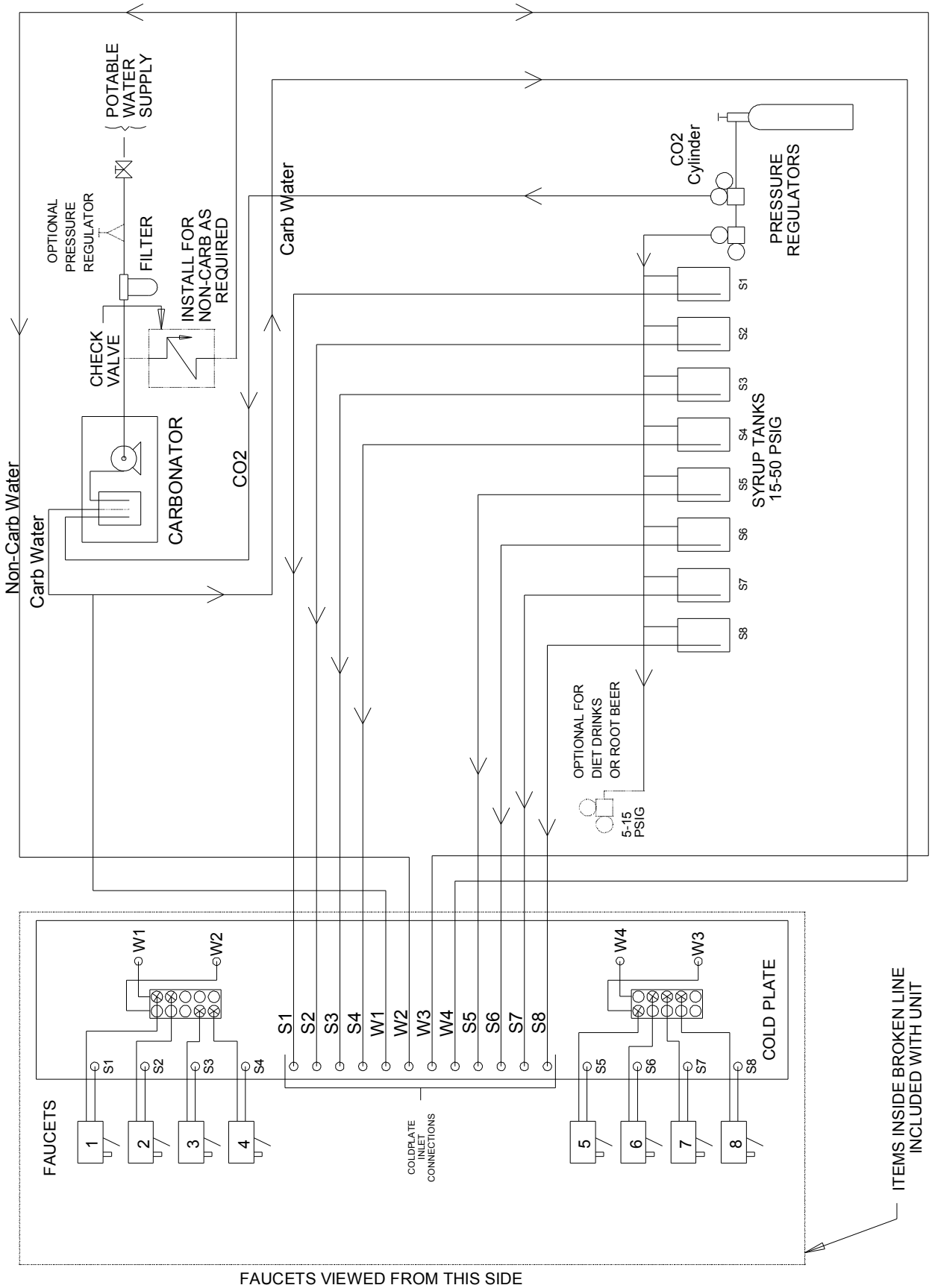

Figure 5. Flow Diagram (Unit With Eight Faucets)

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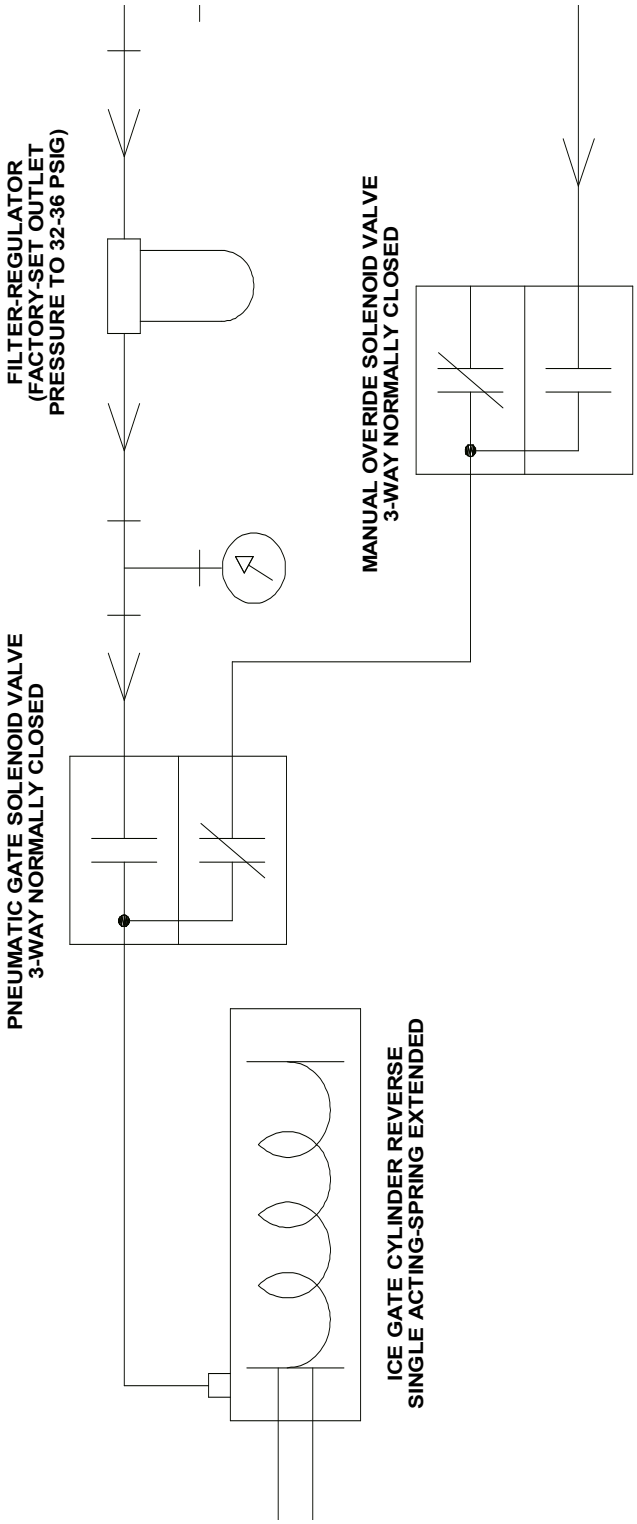

Figure 6. Flow Diagram (Pneumatic Ice Gate)

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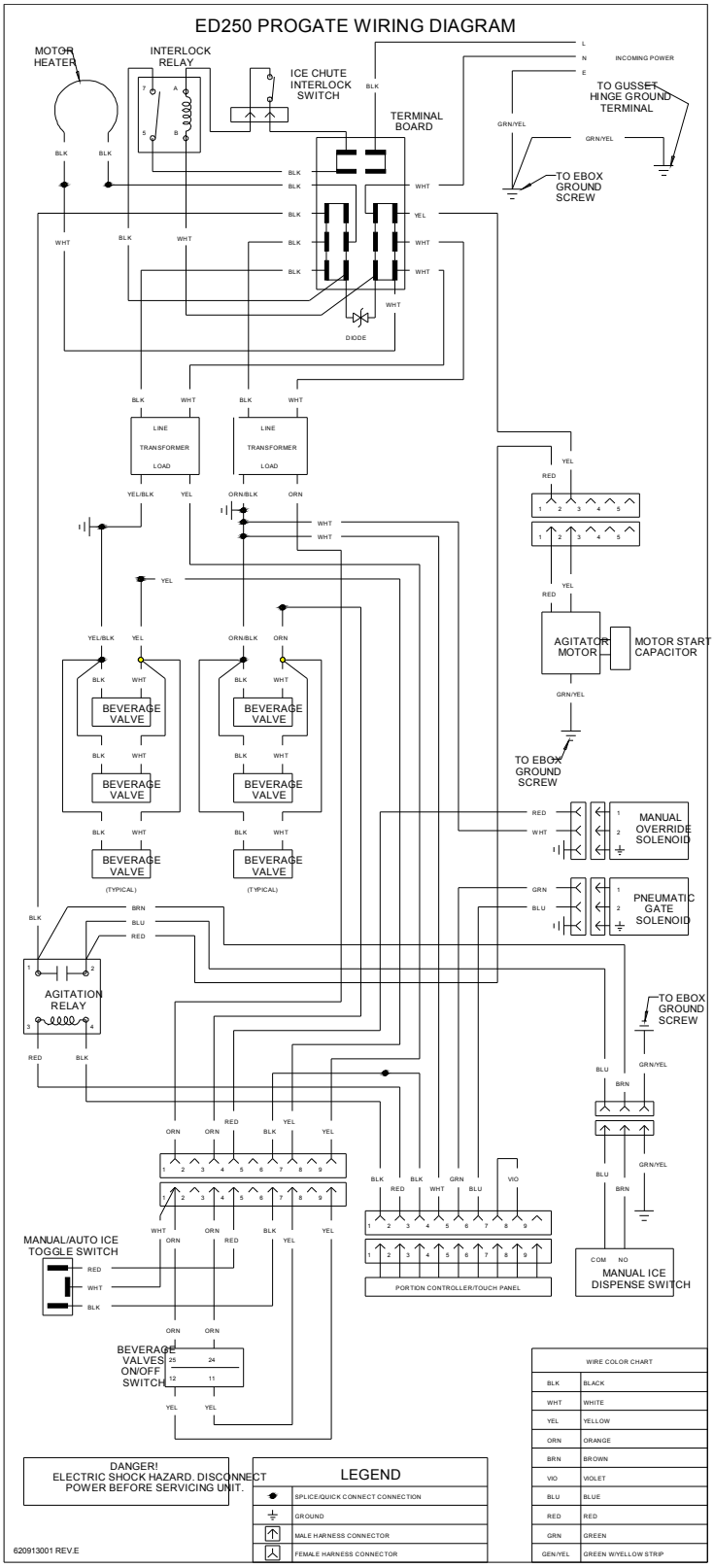

Figure 7. Wiring Diagram (115 Volt Unit)

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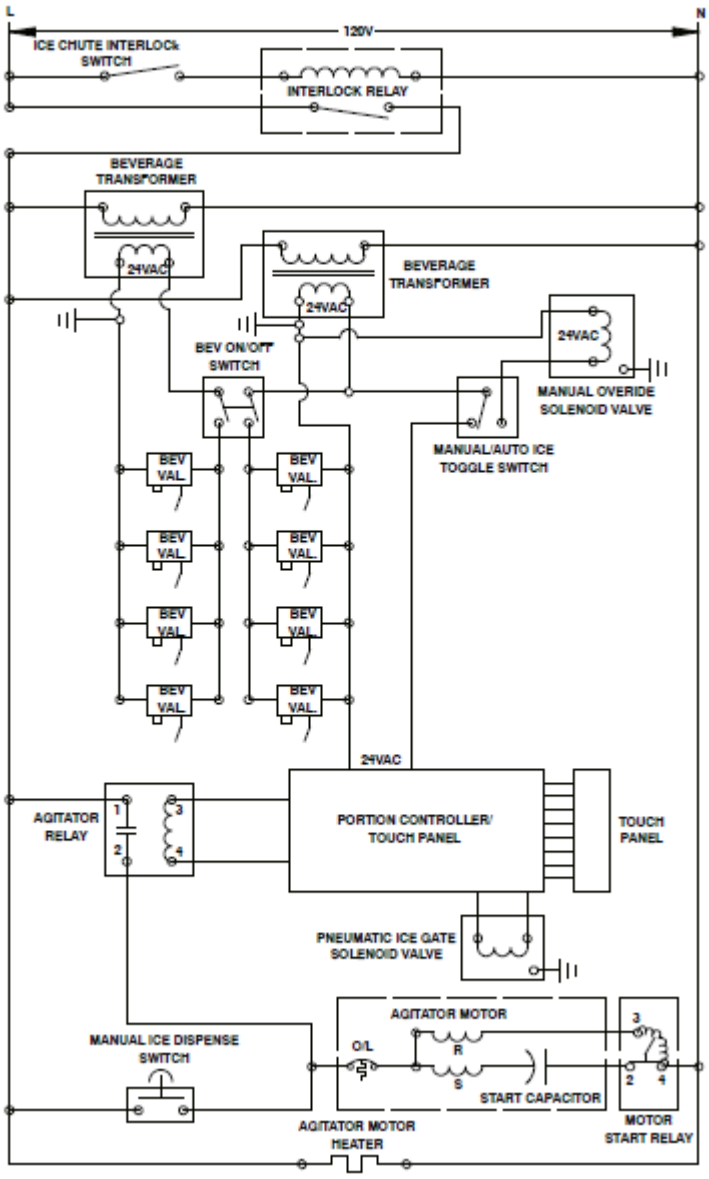

Figure 8. Wiring Schematic (115 Volt)

TROUBLESHOOTING

IMPORTANT: Only qualified personnel should service internal components or electrical wiring.

⚠ WARNING:
If repairs are to be made to a product system, remove quick disconnects from the applicable product tank, then relieve the system pressure before proceeding. If repairs are to be made to the CO2 system, stop dispensing, shut off the CO2 supply, then relieve the system pressure before proceeding. If repairs are to be made to the refrigeration system, make sure electrical power is disconnected from the unit.

NOTE: Should your unit fail to operate properly, check that there is power to the unit and that the hopper contains ice. If the unit does not dispense, check the following chart under the appropriate symptoms to aid in locating the defect.

TROUBLE	PROBABLE CAUSE	REMEDY
NOTE: Should your unit fail to operate properly, check that there is power to the unit and that the hopper contains ice. If the unit does not dispense, check the following chart under the appropriate symptom(s) to aid in locating the defect.		
BLOWN FUSE OR CIRCUIT BREAKER.	A. Short circuit in wiring (115V circuit).	A. Replace defective wiring.
	B. Defective agitator motor.	B. Replace agitator motor.
SLUSHY ICE. WATER IN HOPPER	A. Blocked drain.	A. Open-up/flush out drain.
	B. Unit not level.	B. Level unit.
	C. Poor ice quality due to water quality or ice maker problems.	C. Install water filter system. For Icemaker problems, consult icemaker manual.
	D. Improper use of flaked ice.	D. Replaced flaked ice with “cube style ice (see page 2, Unit Description).
BEVERAGES DO NOT DISPENSE.	A. No 24 volt power to faucets.	A. Check that beverage switch is “on”. Check 24V transformers.
	B. No CO2 pressure.	B. Check CO2 regulator. Check CO2 tank pressure.
BEVERAGES TOO SWEET.	A. Carbonator not working.	A. Check carbonator.
	B. No CO2 pressure in carbonator.	B. Check CO2 regulator. Check CO2 tank pressure.
	C. Faucet brix requires adjusting.	C. Brix Faucet.
BEVERAGES NOT SWEET ENOUGH.	A. Empty syrup tank.	A. Refill syrup tank.
	B. Faucet Brix requires adjusting.	B. Brix Faucet.
BEVERAGES NOT COLD (UNITS WITH BUILD-IN COLD PLATE).	A. Unit standing with no ice in hopper - no ice in cold plate cabinet.	A. Refill hopper with ice.
NOTE: Contact your local syrup or beverage equipment distributor for additional information and trouble shooting of beverage system.		
NO ICE DISPENSED FROM ICE PORTION CONTROLLER	A. Insufficient ice supply in ice bin.	A. Replenish ice supply as required.
	B. Ice in ice bin bridged (stuck together).	B. Gently tap on ice to break it loose.
	C. No electrical power to dispenser.	C. Plug in dispenser power cord, or check fuse or circuit breaker.
NO ICE DISPENSED FROM ICE PORTION CONTROLLER (CONTINUED)	D. Insufficient or no CO2 supply to dispenser.	D. Restore CO2 supply to dispenser.

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TROUBLE	PROBABLE CAUSE	REMEDY
	E. Ice chute cover not properly installed.	E. Make sure that cover is “snapped” into place.
	F. Defective ice chute interlock switch.	F. Replace interlock switch.
	G. Defective interlock relay.	G. Replace relay.
	H. Defective 24V transformer.	H. Replace transformer.
	I. Defective portion controller.	I. Replace controller.
	J. Defective ice gate cylinder.	J. Replace cylinder.
	K. Defective ice gate solenoid valve.	K. Replace solenoid valve.
	L. Agitation relay wiring incorrect.	L. Red wire should be connected to “+” terminal (#3) of relay coil.
	M. Defective agitation relay.	M. Replace relay.
	N. Defective agitator motor start capacitor or start relay.	N. Replace defective component
NO ICE DISPENSED FROM MANUAL ICE DISPENSE PUSH-BUTTON SWITCH	A. Manual/Auto toggle switch in “Auto” position.	A. Move toggle switch to “Manual” position.
	B. Insufficient or no CO2 supply to dispenser.	B. Restore CO2 supply to dispenser.
	C. Defective 24VAC transformer.	C. Replace Transformer.
	D. Defective manual override solenoid valve.	D. Replace valve.
	E. Defective manual ice dispense pushbutton switch.	E. Replace switch.
	F. Defective agitator motor or start capacitor or start relay.	F. Replace defective component.
	G. Defective ice gate cylinder.	G. Replace cylinder.
ICE DISPENSING DURING AUTOMATIC AGITATION	A. Manual/Auto toggle switch in “manual” position.	A. Move toggle switch to “auto” position.
	B. Defective ice gate cylinder.	B. Replace cylinder.
	C. Defective ice gate solenoid valve.	C. Replace valve.
	D. Defective portion controller.	D. Replace controller.

Contact your local syrup or beverage equipment distributor for additional information and troubleshooting of beverage system.

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